

Study Guide

For use with pages 102–107

GOAL Solve equations involving decimals.**EXAMPLE 1** Adding and Subtracting Decimals

- a. Find the sum
- $-3.7 + 1.82$
- .

Use the rule for adding numbers with different signs.

$$-3.7 + 1.82 = -1.88$$

Subtract $|1.82|$ from $|-3.7|$.
 $|-3.7| > |1.82|$, so the sum has the same sign as -3.7 .

- b. Find the difference
- $-5.06 - 4.05$
- .

First rewrite the difference as a sum: $-5.06 + (-4.05)$. Then use the rule for adding numbers with the same sign.

$$-5.06 + (-4.05) = -9.11$$

Add $|-5.06|$ and $|-4.05|$.
 Both decimals are negative, so the sum is negative.

Exercises for Example 1

Find the sum or difference.

- | | |
|---------------------|----------------------|
| 1. $-2.15 + (-7.5)$ | 2. $-3.68 + 0.23$ |
| 3. $5.27 + (-7.12)$ | 4. $-8.25 - 1.28$ |
| 5. $-2.65 - (-4.9)$ | 6. $-11.43 - (5.28)$ |

EXAMPLE 2 Multiplying and Dividing Decimals

- | | |
|--------------------------------|--|
| a. $-0.25(9.95) = -2.4875$ | Different signs: Product is negative. |
| b. $-2.85(-4.8) = 13.68$ | Same sign: Product is positive. |
| c. $-45.92 \div (-8.2) = 5.6$ | Same sign: Quotient is positive. |
| d. $-180.12 \div 15.8 = -11.4$ | Different signs: Quotient is negative. |

Exercises for Example 2

Find the product or quotient.

- | | |
|----------------------|------------------------|
| 7. $3.8(-8.2)$ | 8. $-5.4(1.2)$ |
| 9. $-2.7(-0.3)$ | 10. $7.875 \div -6.3$ |
| 11. $-30.6 \div 8.5$ | 12. $-21.46 \div -2.9$ |

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EXAMPLE 3 Solving Addition and Subtraction Equations

Solve the equation.

a. $z + 1.85 = 0.78$

b. $x - 2.59 = -1.45$

Solution

a. $z + 1.85 = 0.78$

$z + 1.85 - 1.85 = 0.78 - 1.85$

$z = -1.07$

Write original equation.

Subtract 1.85 from each side.

Simplify.

b. $x - 2.59 = -1.45$

$x - 2.59 + 2.59 = -1.45 + 2.59$

$x = 1.14$

Write original equation.

Add 2.59 to each side.

Simplify.

EXAMPLE 4 Solving Multiplication and Division Equations

Solve the equation.

a. $-0.4b = 1$

b. $\frac{y}{-9.6} = -8.1$

Solution

a. $-0.4b = 1$

$\frac{-0.4b}{-0.4} = \frac{1}{-0.4}$

$b = -2.5$

Write original equation.

Divide each side by -0.4 .

Simplify.

b. $\frac{y}{-9.6} = -8.1$

$-9.6\left(\frac{y}{-9.6}\right) = -9.6(-8.1)$

$y = 77.76$

Write original equation.

Multiply each side by -9.6 .

Simplify.

Exercises for Examples 3 and 4

Solve the equation. Check your solution.

13. $a + 6.98 = -3.54$

14. $t + 70.12 = 4.28$

15. $x - 4.79 = -11.82$

16. $m - 13.56 = -12.02$

17. $12.4x = -169.88$

18. $-7.9y = -40.29$

19. $\frac{c}{-50.12} = -0.04$

20. $\frac{x}{-13.2} = 20.1$